

REMARKS

This Amendment is being filed in response to the Office Action mailed April 7, 2004. Claims 41, 43, 47-50 are pending. Claims 41, 47, 48 and 50 have been amended. Claims 51-57 have been added.

The Examiner has rejected applicant's claims 41, 43 and 47-50 under 35 U.S.C. § 103(a) as being unpatentable over Pfeiffer et al. (U.S. Patent No. 5,146,592) in view of Hamada et al. (U.S. Patent No. 5,826,035). This rejection is respectfully traversed and reconsideration is requested.

With respect to independent claim 41, the Examiner has stated that Pfeiffer et al. teach the following features of the claimed image capture apparatus:

"an image capture unit adapted (10) to capture image data, Column 5, lines 58-66... storage means for storing image data... a video DRAM refresh controller having a number of programmable registers for defining the various timing constraints and operations of the controller (Col. 22, lines 33-40)... [capability of] performing a first process of screen refresh and a second process of the image algorithm processor and that both processes can access the image memory (Col. 23, lines 20-34)... an arbitration circuit... to determine the priority of the various requests to access memory (Col. 23, lines 24-32)... that the screen refresh function of the video DRAM shift registers is given top priority (which is viewed as the process of storing the image data), followed by refresh of the DRAM cells, and then address request from the image algorithm processor... that the image capture unit permits the refresh control unit to refresh the memory in a blanking period (Col. 26, lines 56-68)... that the image algorithm processor carries out substantially all of the image and graphics address computations for providing data to the image computer (Col. 9, lines 7-23)... that the image algorithm processor is the master controller of the image computer, providing addresses for the image memory and thus data for the parallel image processor set in carrying out data processing tasks."

The Examiner states that Hamada et al. teaches "including compression and expansion algorithms in an image processor in order to allow image data to be stored in a smaller required memory size" (Col. 9, lines 44-57). The Examiner concludes, "it would have been

obvious to one of ordinary skill in the art at the time the invention was made to include the compression and expansions capabilities in the image processor in order to allow the image data to be stored in a reduced memory size." The Examiner further states that he views the image algorithm processor taught by Hamada et al. as an image compression unit and therefore the image compression unit permits the refresh control unit to refresh the memory every time a predetermined time has passed (Col. 22, lines 33-40).

With respect to independent claim 47, the Examiner has made essentially the same arguments.

Applicant's independent claim 41 has been amended to clarify the features of the present invention and now recites:

An image capture apparatus comprising:
an image capture unit adapted to capture image data;
a memory adapted to store the image data captured by the image capture unit;
an image compression unit adapted to compress the image data stored in the memory;
a control unit adapted to control the image capture apparatus using the memory; and
a refresh control unit coupled to the memory, and adapted to refresh the memory,
wherein the image capture apparatus further comprises an arbitration unit adapted to assign a higher priority to a process of providing image data from the image capture unit to the memory than a process of refreshing the memory, to assign a higher priority to a process of refreshing the memory than a process of providing image data from the memory to the image compression unit, and to assign a higher priority to a process that the control unit uses the memory than a process of providing image data from the memory to the image compression unit until a predetermined time is elapsed after the memory is refreshed.

Applicant's independent claim 47 has been similarly amended.

Applicant respectfully submits that the features of amended claims 41 and 47 are not taught or suggested by the cited references. Particularly, neither the Pfeiffer et al. patent nor

the Hamada et al. patent teach or suggest an arbitration unit adapted to assign a higher priority to a process that the control unit uses the memory than a process of providing image data from the memory to an image compression (or processing) unit until a predetermined time is elapsed after the memory is refreshed, as required by amended claims 41 and 47.

According to the present invention, in an image pickup or display operation, the memory is refreshed with priority relative to the compression processing during a blanking period so no interruption of the image pickup or display operation occurs. Also, after refresh and before compression processing, the CPU 102 can access the DRAM 103 (Application p. 23, lines 8-18). It is thus possible to realize time-division processing of a process that requires a comparatively long processing time, such as image compression/expansion or image processing, and the access of the CPU 102 to the DRAM 103. Such time-division processing enables functions such as blinking a display "COMPRESSING" on the monitor during image compression. (Application p. 26, lines 11-22). Accordingly, with the present invention, until a predetermined time period is elapsed after the memory is refreshed, a process that the control unit uses the memory is assigned higher priority than a process of providing image data from the memory to an image compression or processing unit. Such feature is neither taught nor suggested by the cited references.

The constructions recited in applicant's independent claims 41 and 47, and their respective dependent claims 43 and 48-50, are neither taught nor suggested by the cited Pfeiffer et al. or Hamada et al. patents, either alone or in alleged combination. Applicant's amended independent claims 41 and 47 thus patentably distinguish over Pfeiffer et al. in view of Hamada et al.

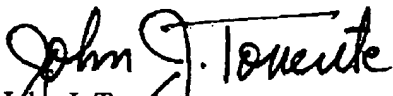
Based upon the patentability of the independent claims, the dependent claims including added claims 51-57, which depend either directly or indirectly from claim 41 or 47, are also submitted as being patentable since they differ in scope from the parent independent claims.

In view of the above, it is submitted that applicant's claims, as amended, patentably distinguish over the cited art of record. Accordingly, reconsideration of the claims is respectfully requested. If the Examiner believes that an interview would expedite consideration of this Amendment or of the application, a request is made that the Examiner telephone applicants' counsel at (212) 682-9640.

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Respectfully submitted,


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